



Montana Agricultural Experiment Station, Department of Research Centers Head-house/Greenhouse Laboratories LRBP Central, Northern, Southern and Western Triangle Research Centers

The project will provide facilities to allow year-round experimental systems for agronomics, crop root morphology, entomology, plant pests or herbicide resistance screening. Thereby, expanding the 90-d outdoor growing season into year-round research potential within these communities. Current greenhouses laboratory facilities are either non-existent or are makeshift and aged at SARC. We are requesting, for each of the four Centers, the construction of **1800 ft²** heated, cooled, lighted greenhouse space with an additional **900 ft²** of heated head-house space for storage of greenhouse related items (pots, soil, etc.), soil mixing, pot washing and soil pasteurization. The head-house will also provide area for potting and greenhouse associated.



Eastern Agricultural Research Center greenhouse-headhouse new construction, 2010.

Project costs including construction and all soft costs are estimated at ~\$185/ ft², thus \$500,000 per unit. These facilities are requested for CARC, NARC, SARC, and WTARC for a total cost of \$2,000,000.



WTARC has tested synthetic plant defense elicitors against wheat stem sawfly under lab, greenhouse and field conditions. We have recently found a potential chemical, Actigard that can kill wheat stem sawfly larvae. We are currently lacking a modern greenhouse for further verifying our results.



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Statewide herbicide-resistant weed surveys, resistance screening, and weed biology and ecology research to develop sustainable weed management solutions in dryland and irrigated cropping systems, SARC.



Enhancing the sustainability of agroecosystems by identifying beneficial microorganisms, evaluating microbial inoculants and exploring the complex interactions between plants and microorganisms, CARC.



We could test various methods for easier and cheaper ways to identify desirable root traits, screen breeders' progenies during the winter months and therefore accelerate the development of new cultivars, NARC.



Modern greenhouse new construction has allowed for screening of germplasm during the winter months for resistance to important pathogens, advancing dry pea germplasm, and high throughput techniques to identify markers for resistance to several dry pea and small grain diseases, EARC.